

What is claimed is:

1. An apparatus for a redundant interconnection between multiple hosts and a RAID, comprising:

5 a plurality of RAID controlling units for processing a requirement of numerous host computers;

a plurality of connecting units for connecting the plurality of RAID controlling units to the numerous host computers; and

10 a plural number of network interface controlling units respectively contained into the plurality of RAID controlling units, for exchanging information directly with the numerous host computers and an opposite network interface controlling unit provided within an opposite RAID controlling units, through the plurality of connecting units.

15 2. The apparatus as recited in claim 1, wherein said respective RAID controlling units are connected to the plurality of individual connecting units.

20 3. The apparatus as recited in claim 2, wherein said each network interface controlling unit is constructed by a pair, namely two, and is contained into the plurality of RAID controlling units, a first network interface controlling unit of said network interface controlling unit being connected to the connecting unit  
25 of one side and a second network interface controlling unit thereof being connected to the connecting unit of another side.

4. The apparatus as recited in claim 3, wherein said each network interface controlling unit further comprises:

the first network interface controlling unit for processing the requirement of the numerous host computers; and

5 the second network interface controlling unit used for fault tolerance in a communication between the respective RAID controlling units when the respective RAID controlling units do not have the occurrence of the error, said second network interface controlling unit being for executing a function of the first network interface controlling unit of the RAID controlling unit having the  
10 occurrence of the error in case that one given RAID controlling unit has the occurrence of the error.

5. The apparatus as recited in claim 1, wherein said plurality  
15 of connecting units have connection ports more than three, the two connection ports among them being connected to said network interface controlling unit and the rest connection ports thereof being provided as a hub equipment connected with the numerous host computers.

20 6. The apparatus as recited in claim 1, wherein said plurality of connecting units have the connection ports more than three, the two connection ports among them being connected to said network interface controlling unit and the rest connection ports thereof  
25 being provided as a network switch equipment connected with the numerous host computers.

7. The apparatus as recited in claim 1, wherein said plurality of connecting units have the connection ports more than five, the four connection ports among them being connected to said network interface controlling unit and the rest connection ports thereof being provided as a switch connected with the numerous host computers.

8. The apparatus as recited in claim 1, wherein said RAID controlling unit, said network interface controlling unit and said connecting unit are respectively constructed by a pair, the first network interface controlling unit of a first RAID controlling unit being connected to a first connecting unit, the second network interface controlling unit of said first RAID controlling unit being connected to a second connecting unit, the first network interface controlling unit of a second RAID controlling unit being connected to the second connecting unit, and the second network interface controlling unit of the second RAID controlling unit being connected to the first connecting unit.